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Prepared For: Bookmark Reading
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Introduction

Building upon the assessment and confidence tracking features implemented in Phase 2, this report documents the successful completion of Phase 3 for the Literacy Tracker Salesforce application. This crucial phase focused on integrating Volunteer Management, enabling the tracking of volunteer assignments to students and the aggregation of volunteer contributions. This allows for a more holistic view of program delivery and impact. Development continued to strictly adhere to the declarative-only principle (no Apex, DLRS, or unmanaged code). All enhancements leverage the existing data model and security framework.

Phase 3 Overview

Phase 3 centred on establishing the link between Students and the Volunteers (represented by Contacts) who support them. Key accomplishments include the creation of the Student_Volunteer__c junction object, enhancements to the Contact object for volunteer-specific information (Record Type, Layouts, Aggregation Fields), the implementation and debugging of a critical scheduled flow (Volunteer Hours Aggregator) to quantify volunteer contributions, and the development of reports and a dashboard to visualize volunteer impact. Permissions were updated accordingly. This phase encountered notable challenges, particularly around dashboard component configuration and initial flow logic, which provided valuable learning experiences.

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Demo Available at: https://rubenpires-dev-ed.develop.lightning.force.com/
Login Credentials:
Username: jvolu@ruben.pires
Password: VOLUNTEER123

Available Demo Activities (New in Phase 2):

- Log Assessments for Students via the Action button.
- Log Confidence Surveys for Students via the Action button.
- View Assessment, Confidence Survey, and Milestone history on Student record tabs.
- Observe automatic updates to Student's Current Reading Level after logging a higher-level Assessment.
- Observe automatic creation of "Level Advancement" Milestones.

1. Phase 3 Data Model Enhancements

This phase introduced the necessary schema components for volunteer tracking:

New Custom Object:

Student_Volunteer__c:
>   **A junction object** linking **Student__c (Master-Detail)** and **Contact (Lookup - Volunteer).**

Key fields include:
- Role__c, Status__c (default "Pending Start")
- Start_Date__c
- End_Date__c
- Hours_Committed__c
- Demo_Data__c
- An auto-number (Assignment ID) serves as the name field.

Student Volunteer Assignment

Created By	Lookup(User)
Demo_Data	Checkbox
End Date	Date
Hours Committed	Number(18, 0)
Last Modified By	Lookup(User)
Primary Location	Lookup(Program Location)
Role	Picklist
Start date	Date
Status	Picklist
Student	Master-Detail(Student)
Student Volunteer Assignment Name	Auto Number
Volunteer	Lookup(Contact)

Enhancements to Standard Contact Object:

- Record Type: <mark>**A Volunteer Record Type**</mark> was created to distinguish **volunteer Contacts**.

New Fields:

- **Total_Hours_Served__c (Number):** Stores the sum of hours from active assignments, populated by the scheduled flow.
- **Student_Assignments__c (Number):** Stores the count of active assignments, populated by the scheduled flow. <mark>(**Dependency:** These fields rely on the successful execution of the Volunteer Hours Aggregator flow)</mark>.
- **Program_Location__c (lookup):** Links Volunteer records to the Program Location Record in which assignments take place.

New Roll-Up Summary on Student__c:

- **Volunteer_Count__c:** Counts related **Student_Volunteer__c** records (potentially filtered for **Active** status).

2. Key User Experience: Volunteer Management

Phase 3 focused on providing clear visibility into volunteer data for relevant staff:

Volunteer Contact Page:

A dedicated Page Layout (**Voluteer Contact Layout**) was created and assigned to the **Volunteer Record Type.**
This layout includes a specific section ("**Volunteering Information**") displaying the aggregated **Total_Hours_Served__c** and **Student_Assignments__c** fields.


It prominently features the **Student Assignments related list**, showing all students linked to that volunteer.
Lightning Page Variations ensure users see this specific layout <mark>only when viewing a Contact with the Volunteer Record Type.</mark>

Student Record Page:

A new section, **"Volunteer Assignments"**, was added to the **Student Lightning Record Page**.

This section contains a **"Related List - Single" component** displaying the **Volunteer Assignments related list,** allowing staff to quickly see **which volunteers are assigned to a specific student, their role, and status:**
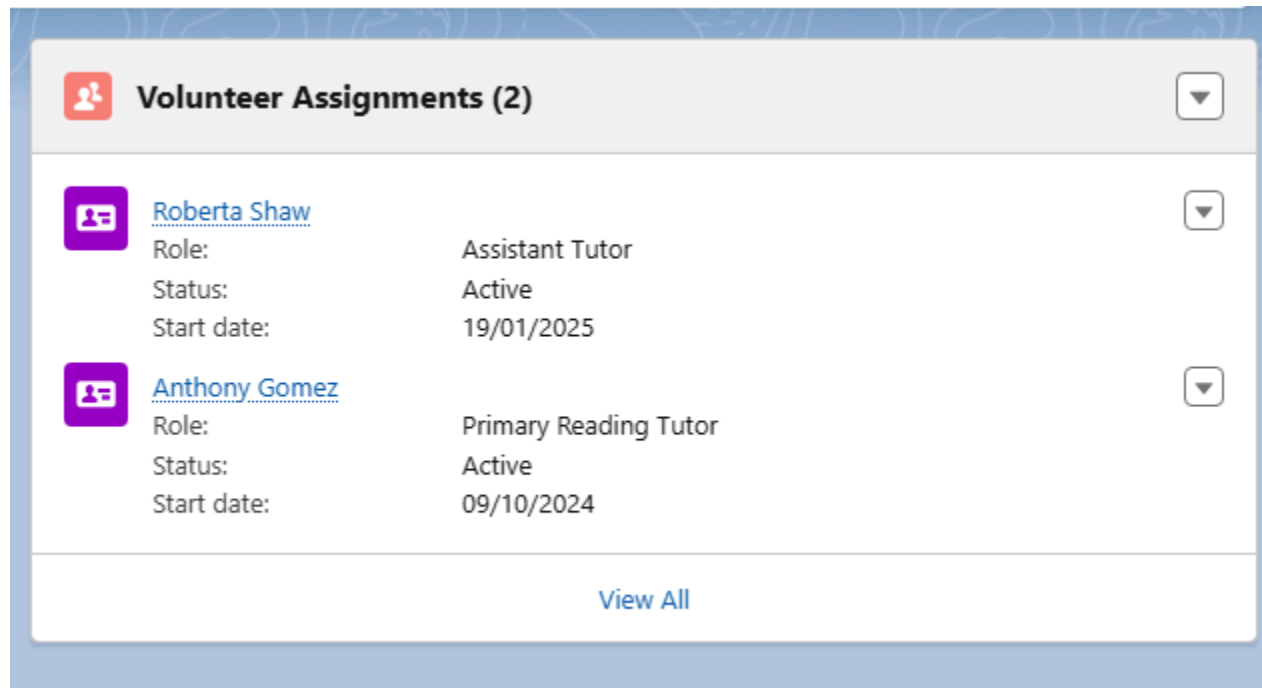
Identified Future Enhancement:

Adding a "**New Volunteer Assignment**" quick action/button to Student/Contact pages was identified as a future usability improvement.

3. Phase 3 Core Automation (Flows)

One critical piece of automation was implemented and refined in this phase:

Flow: Volunteer Hours Aggregator (Scheduled Flow)

Purpose: To nightly **calculate and update the total hours committed** and the **count of active assignments for each Volunteer Contact**, populating the **Total_Hours_Served__c and Student_Assignments__c fields** on their Contact record.

Mechanism: Runs daily (scheduled). Uses an efficient 2-SOQL query approach:

- Gets all Contacts with the Volunteer Record Type (using a Custom Label for the ID).
- **Extracts their IDs into a collection.**
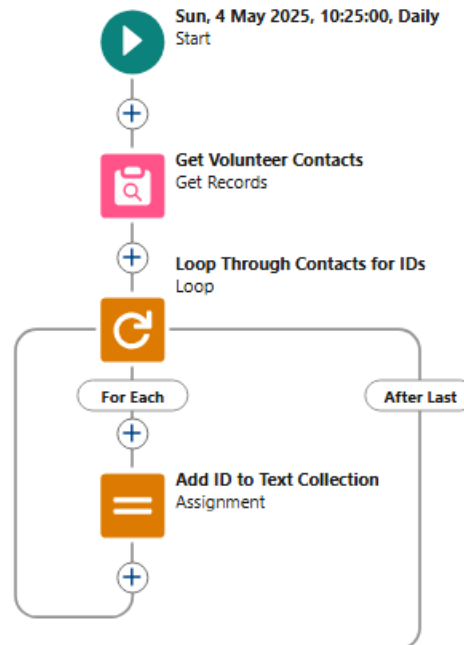
- **Gets all Student_Volunteer__c** records where **Status__c = Active** & **Volunteer__c is IN the collection of Volunteer IDs**.
- Uses nested loops: Outer loop iterates through Volunteers; **inner loop iterates through the single collection of all active assignments.**
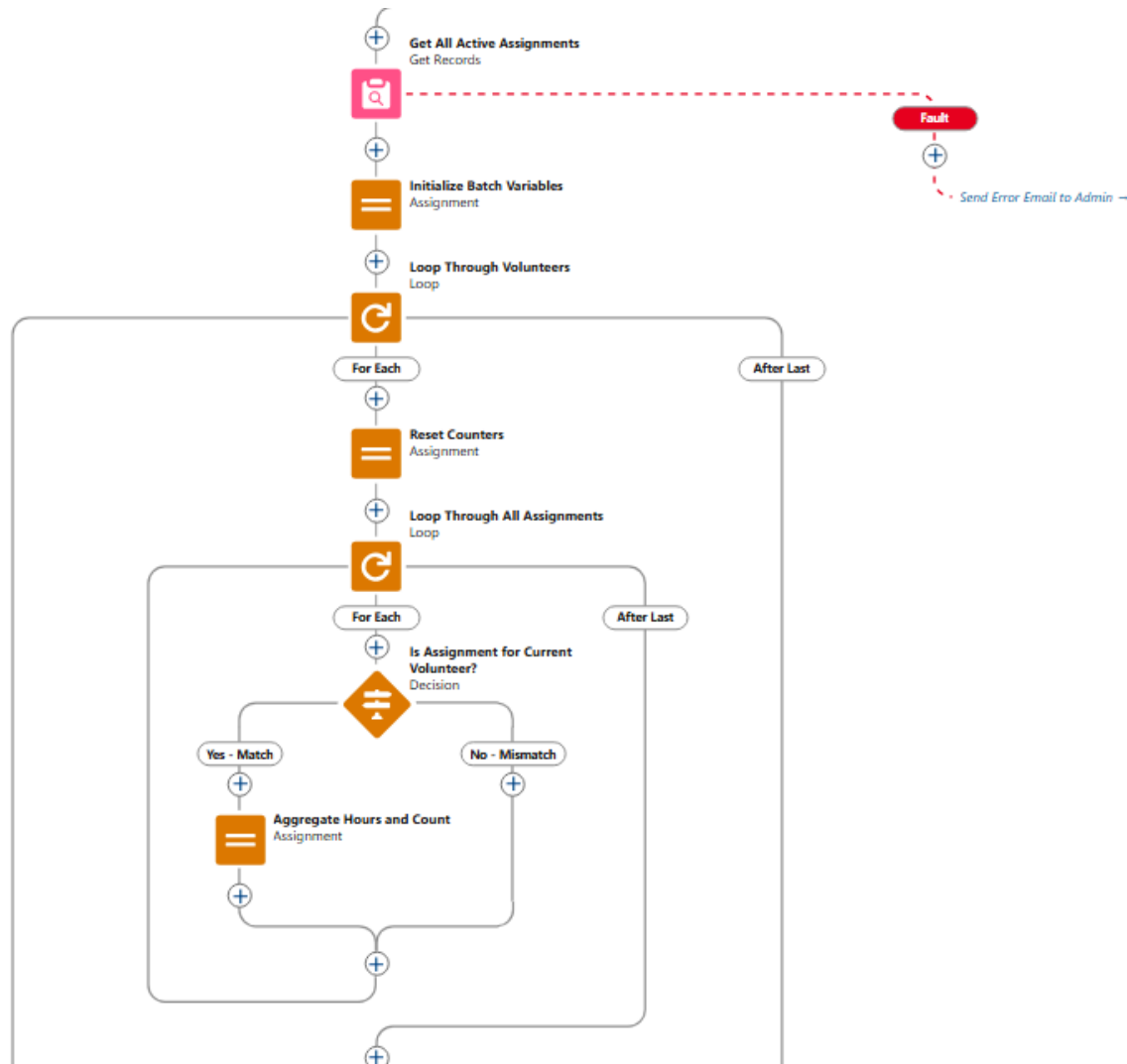
- Aggregates hours (BLANKVALUE used for safety) and counts assignments for the current volunteer within the loops.
- **Prepares Contact records** for update and **adds them to a collection**
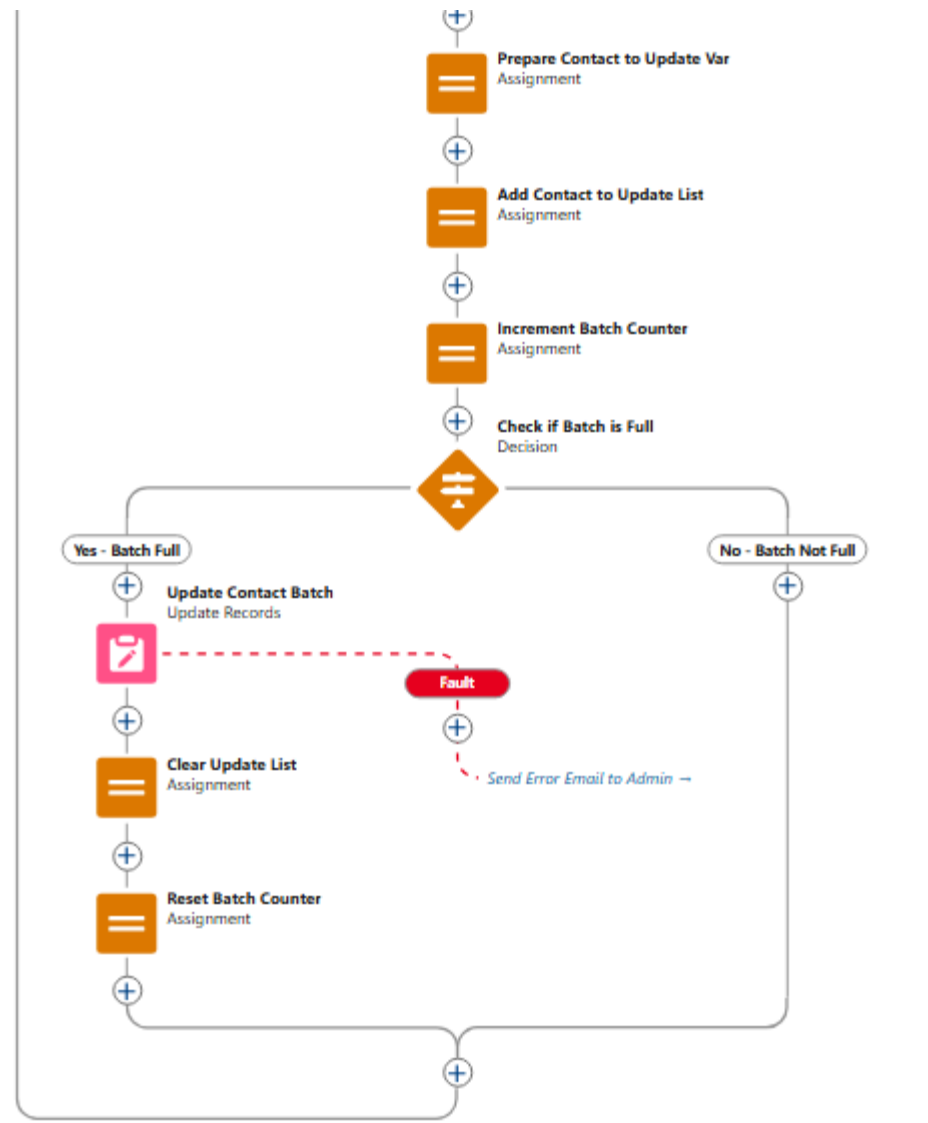
- **Uses Collection Slice pattern:** Updates the Contact records in **batches (size 150)** within the loop **to avoid hitting DML limits.** Handles leftover records after the main loop.
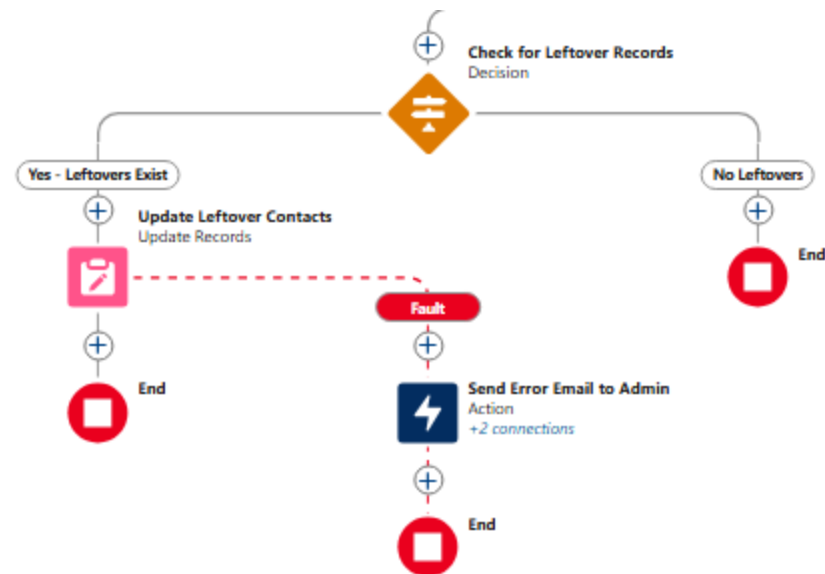
- **Debugging:** An initial bug where AccountId was incorrectly mapped instead of Contact.Id during the update preparation was identified and fixed. The flow is now confirmed operational.

4. Reporting & Dashboards: Volunteer Impact

A key deliverable was providing insights into volunteer contributions:

Custom Report Types (CRT) Created:

Contacts with Student Volunteer Assignments: Primary Contact, allowing reports focused on volunteers and their related assignments.

Student Volunteer Assignments with Volunteer Info: Primary Assignment, allowing reports focused on assignments while pulling in volunteer details via lookup fields added to the CRT layout.

Source Reports Created:

Volunteer Leaderboard - Hours Served:

- Uses standard Contact report type,
- filtered for Volunteers with hours > 0,
- shows Total_Hours_Served__c.

Total Total Hours Served
1,722

First Name ↓	Last Name	Total Hours Served
James	Browning	193
	Bird	31
Jessica	Wu	10
	Bell	118
Sara	Henderson	111
Timothy	Cooley	105
Carl	White	79
Sandra	Hall	77
Holly	Johnston	75
Anthony	Bishop	39
	Gomez	36
Danny	Graham	67
Eric	Smith	38

Total Active Assignments Count:

- Uses Student Volunteer Assignments with... CRT,
- filtered for Active status & Volunteer RT,
- grouped by Status,
- uses Grand Total Record Count.

Report: Student Volunteer Assignments with Contact
Total Active Assignments Count

Total Records	Unique Student Volunteer Assign...
90	90

Status ↑	Unique Count of Student Volunteer Assignment Name	Record Count
Active	90	90
Total	90	90

Unique Active Volunteers Count:

- Uses Contacts with... CRT,
- filtered for Volunteer RT & Active Status, grouped by Status, uses Grand Total Unique Count of Contact ID.

Report: Contacts with Student Volunteer Assignments
Unique Active Volunteers Count

Total Records	Unique Contact ID
104	76

Status ↑	Unique Count of Contact ID	Record Count
-	14	14
Active	62	90
Total	76	104

Volunteer Hours Trend by Month:

- Uses Student Volunteer Assignments with... CRT,
- grouped by Start Date (Month),
- sums Hours_Committed__c,
- includes line chart.

Report: Student Volunteer Assignments with Contact
Volunteer Hours Trend by Month
Sum of Hours Committed by active Volunteers per month based on Assignment

Start date ↑	Student Volunteer Assignment Name	Hours Committed
January 2025 (7)	SVA-0008	-
	SVA-0010	9
	SVA-0022	18
	SVA-0039	4
	SVA-0040	67
	SVA-0045	4
	SVA-0104	3
Subtotal		105
February 2025 (7)	SVA-0007	20
	SVA-0047	49
	SVA-0054	-
	SVA-0073	25
	SVA-0089	-
	SVA-0098	4

Volunteer Impact Dashboard:

Assembled using the above reports.
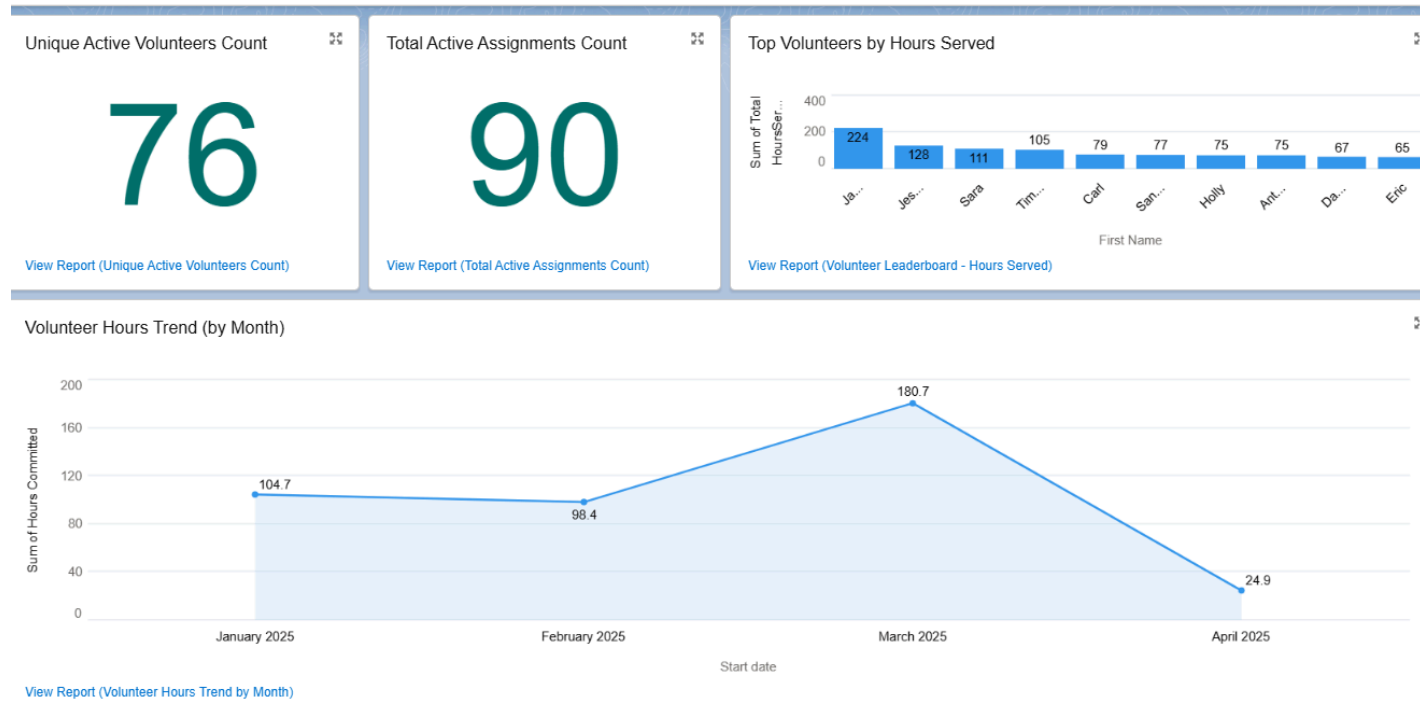
Components:

- **Top Volunteers by Hours Served** (Bar Chart from Leaderboard report).
- **Total Active Volunteers** (Metric/Gauge using FINAL - Unique Active Volunteers Count report & Unique Count of Contact ID).
- **Total Active Assignments** (Metric/Gauge using FINAL - Total Active Assignments Count report & Record Count).
- **Volunteer Hours Trend** (Line Chart from Trend report).

The dashboard folder and underlying report folder were shared with <mark>CEO & Literacy Program Staff roles</mark> (with appropriate View access).

5. Security & Access Model Updates

Permissions were updated to grant access to Phase 3 components:

Permission Set Literacy Program Core Access (Specialists):

- Granted Read object access to Student_Volunteer__c.
- Granted Read FLS to all Student_Volunteer__c fields.
- Granted Read FLS to Contact.Total_Hours_Served__c & Contact.Student_Assignments__c.
- Verified Volunteer Contact RT visibility.

Permission Set Account & Contact Management - Literacy Program (Managers/Coordinators):

- Granted Read, Create, Edit, Delete object access to Student_Volunteer__c.
- Granted Edit FLS to all Student_Volunteer__c fields.
- Granted Edit FLS to Contact.Total_Hours_Served__c & Contact.Student_Assignments__c.
- Ensured Volunteer Contact RT assignment.
- (PSG inheritance ensures roles received updated access).

6. Challenges & Learnings

Phase 3 encountered several technical hurdles which were successfully overcome:

Demo Data Generation Strategy:

The initial plan detailed creating complex declarative flows for demo data generation.
This proved **excessively time-consuming and impractical,** decided that tooling should not be bound by the core application's declarative constraint.

Learning: A strategic pivot was made to use an external **Python script for efficient CSV generation**, saving significant development time while still meeting testing needs. The **Demo_Data__c** flag was created as a crucial identifier to clean demo data in the future.

Volunteer Hours Aggregator Flow Bug:

The initial version of the scheduled flow failed due to an incorrect variable mapping (AccountId instead of Contact.Id) in the update step.

Learning: Careful debugging and log analysis pinpointed the error, which was resolved by correcting the mapping, reinforcing the need for thorough unit testing even in flows.

Dashboard Metric Configuration:

Significant difficulty was encountered making the Metric/Gauge dashboard components display the "Total Active Volunteers" (unique count) and "Total Active Assignments" (record count) correctly. Component types were often greyed out.

Learning: It was discovered that structuring the source reports with a simple row grouping (e.g., by Status), even when primarily interested in the Grand Total, markedly improved compatibility with these specific dashboard component types. Creating two distinct, purpose-built reports proved more reliable than attempting complex summaries on a single report for these metrics.

7. Next Steps (Phase 4 Preview)

With Volunteer management basics in place, Phase 4 will focus on:

Sharing Rules:

Defining and implementing specific Sharing Rules for Volunteers to grant them access only to their assigned Students (addressing the current Private OWD model).

UI/UX & Identified Enhancements:

Implementing identified improvements like the "New Assignment" action button.

Initial Volunteer User Setup:

Potentially defining the basic, restricted Permission Set for the Volunteer user profile (pending sharing rules).